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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/651,658

08/29/2000

Raymond J. Beach

IL-10571

1359

7590

09/21/2004

Alan H Thompson
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EXAMINER

JACKSON, CORNELIUS H

ART UNIT

PAPER NUMBER

2828

DATE MAILED: 09/21/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

AK

Office Action Summary	Application No.	Applicant(s)	
	09/651,658	BEACH ET AL.	
	Examiner	Art Unit	
	Cornelius H. Jackson	2828	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 June 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Acknowledgment

1. Acknowledgment is made that applicant's Amendment, filed on 30 June 2004, has been entered. Upon entrance of the Amendment, claims 12 and 16 were amended. Claims 1-20 are now pending in the current application.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Meissner et al. (5936984) in view of Tang (6263007). Meissner et al. teach a polished **see col. 6, lines 59-67** uncoated doped (doped with Yb) laser rod **101**, having a first and second end, a first and second flanged endcap **103, 105**, and an entire length operatively connected to their respective end, **see col. 4, lines 9-14**. Meissner et al. fail to teach that the laser rod is tapered, but teaches the laser rod is of laserable material with a circular cross-section, and that laserable material with other cross-sections may also be utilized (meaning that the laser rod may take on any shape desired), **see col.**

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10, lines 63-66. Tang teach a tapered laser rod along the entire length **see Fig. 9, and col. 7, lines 47-63.** It would have been obvious to one of ordinary skill in the art at the time the invention was made to employ the teaching of Tang to the laser rod of Meissner because Meissner teach the that laserable material with other cross-sections may also be utilized, **see col. 10, lines 63-66.**

In regard to claims 2-4, 6, and 8-10, Tang teaches all stated limitations, **see Fig. 9.**

In regard to claims 5, 12-15, Meissner et al. teach all stated limitations, **see cols. 4-7.**

In regard to claims 7 and 11, it would have been obvious to one of ordinary skill in the art at the time the invention was made to optimize the taper value and/or diameter of the laser rod, since has been held that were the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. In re Aller, 105 USPQ 233.

In regard to claims 16-20, the method of forming the device is rejected under the same grounds of the device itself, since the device made would be formed by the method.

4. Claims 1-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Meissner et al. (5936984) in view of Uchida (3617917). Meissner et al. teach a polished **see col. 6, lines 59-67** uncoated doped (doped with Yb) laser rod **101**, having a first and second end, a first and second flanged endcap **103, 105**, and an entire length operatively connected to their respective end, **see col. 4, lines 9-14.** Meissner et al. fail

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to teach that the laser rod is tapered, but teaches the laser rod is of laserable material with a circular cross-section, and that laserable material with other cross-sections may also be utilized (meaning that the laser rod may take on any shape desired), **see col. 10, lines 63-66**. Uchida teach a tapered laser rod along the entire length **see Fig. 1**. It would have been obvious to one of ordinary skill in the art at the time the invention was made to employ the teaching of Uchida to the laser rod of Meissner in order to increase the spot size of the output beam, **see Uchida col. 1, lines 64-75**.

In regard to claims 2, 3, 6, and 8, Uchida teaches all stated limitations, **see Fig. 1**.

In regard to claims 4, 9 and 10, it would have been obvious to one of ordinary skill in the art at the time the invention was made to taper the active medium as claimed in accordance with the TEM_{00} Gaussian beam profile, as determined by the laser cavity structure, so as to limit light amplification of other modes that have different and unfit profiles. Among the advantages of the use of a stepwise or tapered enclosure is the fact that it eliminates the need to otherwise employ a complicated mirror coating design or intra-cavity apertures for selecting the TEM_{00} mode.

In regard to claims 5, 12-15, Meissner et al. teach all stated limitations, **see cols. 4-7**.

In regard to claims 7 and 11, it would have been obvious to one of ordinary skill in the art at the time the invention was made to optimize the taper value and/or diameter of the laser rod, since has been held that were the general conditions of a claim are

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disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. In re Aller, 105 USPQ 233.

In regard to claims 16-20, the method of forming the device is rejected under the same grounds of the device itself, since the device made would be formed by the method.

Response to Arguments

5. Applicant's arguments filed 30 June 2004 have been fully considered but they are not persuasive.

Applicant argued that Meissner et al. does not teach a tapered gain medium. In response, Tang is relied upon for teaching a tapered gain medium, Meissner is used to teach setting/environment of the gain medium and that the gain medium may have any desired shape.

Applicant argued Tang shows a tapered gain enclosure, which is unrelated, since the tapered region in Tang refers to a near unity, containing a gaseous medium. In response, Tang discloses both a gaseous and non-gaseous gain medium, **see col. 7, lines 54-55**, therefore the non-gaseous gain medium is related.

Conclusion

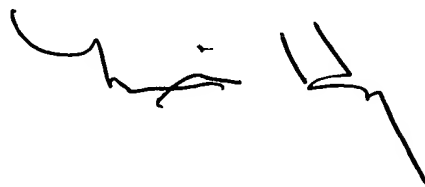
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cornelius H. Jackson whose telephone number is (571)272-1942. The examiner can normally be reached on 8:00 - 5:00, Monday - Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, MinSun Harvey can be reached on (571)272-1835. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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MINSUN OH HARVEY
PRIMARY EXAMINER